

REMARKS—General

Drawings:

Drawing objections are noted and corrected with new drawings submitted herewith.

Drawing 1 (FIG. 1A) has been changed to indicate “means of transmitting power” by assigning element number 20 to the drive chain. Drawing 1A has been also labeled “Prior Art”.

Drawing 2 (FIG. 1B) has been changed to indicate “means of transmitting power” by labeling element numbers 20A and 20B.

A variation of Drawing 2 (Drawing 9, FIG. 1C) has been included to show the “tricycle” feature of claims 1, 3, 4, and 5.

Another variation of Drawing 2 (Drawing 10, FIG. 1D) has been included to show the “second seat” feature of claim 2.

The drawing numbers at the top of Drawings 3 through 8 have been updated to reflect the new total number of drawings, i. e. “3/8” changed to --3/10--, etc.

Specification:

The specification has been amended to refer to the tricycle of claims 1, 3, 4, and 5.

The specification has been amended to refer to the second seat of claim 2.

The specification has been amended to refer to “means of transmitting power” of claim 1 by element number 20 in paragraph [0034].

“A power transmission means” in claim 5 refers to element number 20B.


Claims:


Claim 1 has been amended to better match the specification. The specification does not require the electric assist unit to be exactly along a longitudinal line between the pedal shaft and the driven rear wheel axle. "Roughly midway" has been deleted as being ambiguous.

Claim 4 is of minor importance and has been cancelled rather than showing the claimed feature in a drawing.

Claims 5 and 6 have been amended with the letter --a-- where requested.

Very Respectfully,

 14 Mar 2006
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 16 March 06
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-----Applicants Pro Se-----


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2006 Mar. 16

 14 Mar 2006

Brent Bolton, Applicant

Attachment: Appendix to Amendment A With Replacement Paragraphs Marked-Up to Indicate Changes



Appendix to Amendment A

With Amended Paragraphs Marked-Up to Indicate Changes

Commissioner for Patents

P.O. Box 1450, Alexandria, VA 22313-1450

Sir:

Pursuant to Rule 121, the following is a copy of all paragraphs amended by the attached Amendment A, with all changes indicated by bracketing deletions and underlining additions:

Specification:

{0034} FIG. 1B shows recumbent bicycle of the present invention. An electric assist module has been interposed into the chain line of the rear drive recumbent bicycle of FIG. 1A. The assist module 60 is mounted to the frame of the bicycle using suitable brackets approximately midway between the pedals and rear wheel. Two shorter chains replace [the] drive chain 20 of the unmodified bicycle. Front chain 20A connects the bicycle's conventional pedal sprocket to freewheel sprocket 36 of the assist module 60. Rear chain 20B connects sprocket 34 to the bicycle's conventional rear wheel gear cassette or other gear change means.

Claim 1:

1. (amended) A pedal operated recumbent bicycle or tricycle defined as:

- (a) a two or three wheel vehicle having a pedal mechanism for propulsion,
- (b) said pedal mechanism having a shaft rotatably mounted transverse to the vehicle structure and having a distance between the shaft rotational axis and a driven rear wheel axle centerline of 24 inches or greater and,
- (c) having means for transferring pedal power to a rear wheel or wheel pair and,

(d) having a seat to support the rider in a position rearward of the pedal shaft and,

(e) said seat having means in addition to simple friction between rider and seating surface to resist rearward motion of a rider exerting leg muscle force on the pedals and,

(f) the lowest point of the seating surface of said seat being no more than 20 vertical inches above the rotational axis of said pedal shaft and,

said pedal operated recumbent bicycle or tricycle having an electric assist unit mounted [roughly midway along an imaginary longitudinal line] between an imaginary vertical line drawn through the pedal shaft and an imaginary vertical line drawn through the driven rear wheel axle and having a means for transmitting power to a rear wheel or wheels and a means for transmitting power received from the pedal mechanism to said rear wheel or wheels, said electric assist unit comprising:

(a) a means for mounting the electric assist unit to the frame of said recumbent bicycle or tricycle,

(b) a support means for holding the elements of the electric assist unit in the correct positions relative to one another,

(c) an electric motor having a means of controllably varying output torque, power, or speed,

(d) said electric motor being coupled via an overrunning clutch to a speed reducing means,

(e) said overrunning clutch being arranged to allow the speed reducing means to be rotated at a speed faster than the motor shaft without driving the motor,

(f) said speed reducing means driving one or two rear wheels via a power transmission means,

(g) said power transmission means allowing the ratio of motor rotational speed to wheel rotational speed to be changed while in operation,

(h) the pedals of the recumbent bicycle or tricycle being coupled to said speed reducing means through another overrunning clutch such that the pedals may drive the rear wheels via the speed reducing means but will not be driven by the speed reducing means and,

(i) a source of electric current selected from the group consisting of capacitors and inductors and storage batteries and fuel cells and photovoltaic cells and thermoelectric devices.

Claim 5:

5. (amended) An electric assist unit for recumbent bicycles and tricycles comprising:

(a) a means for mounting the electric assist unit onto a recumbent bicycle or a tricycle between pedals and rear axle,

(b) a support means for holding the elements of the electric assist unit in the correct positions relative to one another,

(c) an electric motor having a means of controllably varying output torque, power, or speed,

(d) said electric motor being coupled via an overrunning clutch to a speed reducing means,

(e) said overrunning clutch being arranged to allow the speed reducing means to be rotated at a speed faster than the motor without driving the motor,

(f) said speed reducing means driving one or more rear wheels via a power transmission means,

(g) said power transmission means allowing the ratio of motor rotational speed to wheel rotational speed to be changed while in operation,

(h) the pedals of the recumbent bicycle or tricycle coupled to said speed reducing means through another overrunning clutch such that the pedals may drive the rear wheels but will not be driven by the speed reducing means and,

(i) a source of electric current selected from the group consisting of capacitors and inductors and storage batteries and fuel cells and photovoltaic cells and thermoelectric devices.

Claim 6:

6. (amended) An electric assist unit as set forth in claim 5 having a rear wheel drive chain and a means for guiding said rear wheel drive chain onto a sprocket on the electric assist unit so as to inhibit chain derailment.